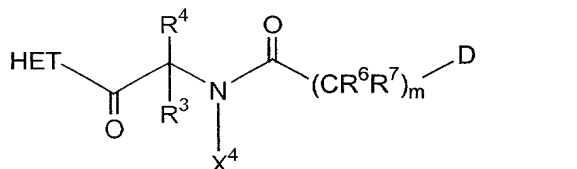


# Claims

5 1. A compound of the formula

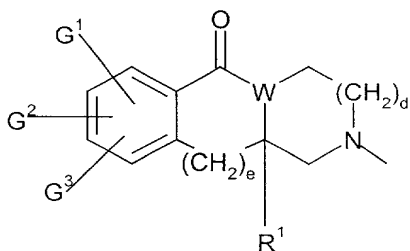
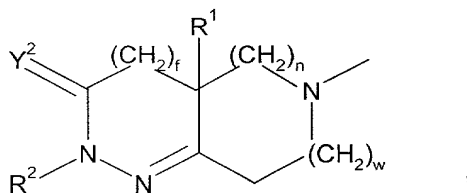
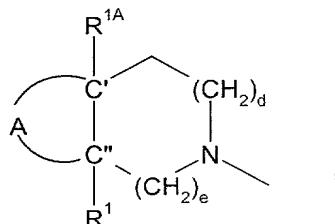
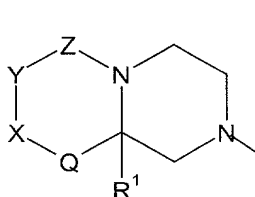


or a stereoisomeric mixture thereof, diastereomerically enriched, diastereomerically pure, enantiomerically enriched or enantiomerically pure isomer thereof, or a prodrug of such compound, mixture or isomer thereof, or a pharmaceutically acceptable salt of the compound, mixture, isomer or prodrug,

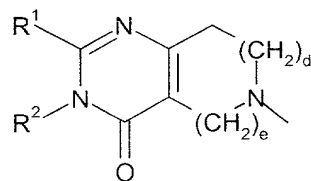
wherein:

m is 0, 1 or 2;

HET is a heterocyclic moiety selected from the group consisting of



and



;

15 d is 0, 1 or 2;

e is 1 or 2;

f is 0 or 1;

n and w are 0, 1 or 2, provided that n and w cannot both be 0 at the same time;

5 Y<sup>2</sup> is oxygen or sulfur;

A is a radical, where the left hand side of the radical as shown below

is connected to C" and the right hand side of the radical as shown below is connected

to C', selected from the group consisting of -NR<sup>2</sup>-C(O)-NR<sup>2</sup>-, -NR<sup>2</sup>-S(O)<sub>2</sub>-NR<sup>2</sup>-, -O-

C(O)-NR<sup>2</sup>-, -NR<sup>2</sup>-C(O)-O-, -C(O)-NR<sup>2</sup>-C(O)-, -C(O)-NR<sup>2</sup>-C(R<sup>9</sup>R<sup>10</sup>)-, -C(R<sup>9</sup>R<sup>10</sup>)-NR<sup>2</sup>-

10 C(O)-, -C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-, -S(O)<sub>2</sub>-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-, -C(R<sup>9</sup>R<sup>10</sup>)-O-C(O)-, -

C(R<sup>9</sup>R<sup>10</sup>)-O-C(R<sup>9</sup>R<sup>10</sup>)-, -NR<sup>2</sup>-C(O)-C(R<sup>9</sup>R<sup>10</sup>)-, -O-C(O)-C(R<sup>9</sup>R<sup>10</sup>)-, -C(R<sup>9</sup>R<sup>10</sup>)-C(O)-NR<sup>2</sup>-

, -C(O)-NR<sup>2</sup>-C(O)-, -C(R<sup>9</sup>R<sup>10</sup>)-C(O)-O-, -C(O)-NR<sup>2</sup>-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-, -C(O)-O-

C(R<sup>9</sup>R<sup>10</sup>)-, -C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-, -S(O)<sub>2</sub>-NR<sup>2</sup>-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-,

-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-NR<sup>2</sup>-C(O)-, -C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-O-C(O)-, -NR<sup>2</sup>-C(O)-C(R<sup>9</sup>R<sup>10</sup>)-

15 C(R<sup>9</sup>R<sup>10</sup>)-, -NR<sup>2</sup>-S(O)<sub>2</sub>-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-, -O-C(O)-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-, -C(R<sup>9</sup>R<sup>10</sup>)-

C(R<sup>9</sup>R<sup>10</sup>)-C(O)-NR<sup>2</sup>-, -C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-C(O)-, -C(R<sup>9</sup>R<sup>10</sup>)-NR<sup>2</sup>-C(O)-O-, -C(R<sup>9</sup>R<sup>10</sup>)-O-

C(O)-NR<sup>2</sup>-, -C(R<sup>9</sup>R<sup>10</sup>)-NR<sup>2</sup>-C(O)-NR<sup>2</sup>-, -NR<sup>2</sup>-C(O)-O-C(R<sup>9</sup>R<sup>10</sup>)-, -NR<sup>2</sup>-C(O)-NR<sup>2</sup>-

C(R<sup>9</sup>R<sup>10</sup>)-, -NR<sup>2</sup>-S(O)<sub>2</sub>-NR<sup>2</sup>-C(R<sup>9</sup>R<sup>10</sup>)-, -O-C(O)-NR<sup>2</sup>-C(R<sup>9</sup>R<sup>10</sup>)-, -C(O)-N=C(R<sup>11</sup>)-NR<sup>2</sup>-,

-C(O)-NR<sup>2</sup>-C(R<sup>11</sup>)=N-, -C(R<sup>9</sup>R<sup>10</sup>)-NR<sup>12</sup>-C(R<sup>9</sup>R<sup>10</sup>)-, -NR<sup>12</sup>-C(R<sup>9</sup>R<sup>10</sup>)-,

20 -NR<sup>12</sup>-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-, -C(O)-O-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-, -NR<sup>2</sup>-C(R<sup>11</sup>)=N-C(O)-,

-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-N(R<sup>12</sup>)-, -C(R<sup>9</sup>R<sup>10</sup>)-NR<sup>12</sup>-, -N=C(R<sup>11</sup>)-NR<sup>2</sup>-C(O)-,

-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-NR<sup>2</sup>-S(O)<sub>2</sub>-, -C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-S(O)<sub>2</sub>-NR<sup>2</sup>-,

-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-C(O)-O-, -C(R<sup>9</sup>R<sup>10</sup>)-S(O)<sub>2</sub>-C(R<sup>9</sup>R<sup>10</sup>)-, -C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-S(O)<sub>2</sub>-, -

O-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-, -C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)-O-, -C(R<sup>9</sup>R<sup>10</sup>)-C(O)-C(R<sup>9</sup>R<sup>10</sup>)-,

25 -C(O)-C(R<sup>9</sup>R<sup>10</sup>)-C(R<sup>9</sup>R<sup>10</sup>)- and -C(R<sup>9</sup>R<sup>10</sup>)-NR<sup>2</sup>-S(O)<sub>2</sub>-NR<sup>2</sup>-;

Q is a covalent bond or CH<sub>2</sub>;

W is CH or N;

X is CR<sup>9</sup>R<sup>10</sup>, C=CH<sub>2</sub> or C=O;

Y is CR<sup>9</sup>R<sup>10</sup>, O or NR<sup>2</sup>;

30 Z is C=O, C=S or S(O)<sub>2</sub>;

G<sup>1</sup> is hydrogen, halo, hydroxy, nitro, amino, cyano, phenyl, carboxyl, -CONH<sub>2</sub>,

-(C<sub>1</sub>-C<sub>4</sub>)alkyl optionally independently substituted with one or more phenyl, one or

more halogens or one or more hydroxy groups, -(C<sub>1</sub>-C<sub>4</sub>)alkoxy optionally

independently substituted with one or more phenyl, one or more halogens or one or

more hydroxy groups,  $-(C_1-C_4)\text{alkylthio}$ , phenoxy,  $-\text{COO}(C_1-C_4)\text{alkyl}$ ,  $N,N\text{-di-}(C_1-C_4)\text{alkylamino}$ ,  $-(C_2-C_6)\text{alkenyl}$  optionally independently substituted with one or more phenyl, one or more halogens or one or more hydroxy groups,  $-(C_2-C_6)\text{alkynyl}$  optionally independently substituted with one or more phenyl, one or more halogens  
 5 or one or more hydroxy groups,  $-(C_3-C_6)\text{cycloalkyl}$  optionally independently substituted with one or more  $(C_1-C_4)\text{alkyl}$  groups, one or more halogens or one or more hydroxy groups,  $-(C_1-C_4)\text{alkylamino carbonyl}$  or  $\text{di-}(C_1-C_4)\text{alkylamino carbonyl}$ ;

$G^2$  and  $G^3$  are each independently selected from the group consisting of hydrogen, halo, hydroxy,  $-(C_1-C_4)\text{alkyl}$  optionally independently substituted with one  
 10 to three halogens and  $-(C_1-C_4)\text{alkoxy}$  optionally independently substituted with one to three halogens;

$R^1$  is hydrogen,  $-\text{CN}$ ,  $-(\text{CH}_2)_q\text{N}(\text{X}^6)\text{C}(\text{O})\text{X}^6$ ,  $-(\text{CH}_2)_q\text{N}(\text{X}^6)\text{C}(\text{O})(\text{CH}_2)_t\text{A}^1$ ,  
 $-(\text{CH}_2)_q\text{N}(\text{X}^6)\text{S}(\text{O})_2(\text{CH}_2)_t\text{A}^1$ ,  $-(\text{CH}_2)_q\text{N}(\text{X}^6)\text{S}(\text{O})_2\text{X}^6$ ,  $-(\text{CH}_2)_q\text{N}(\text{X}^6)\text{C}(\text{O})\text{N}(\text{X}^6)(\text{CH}_2)_t\text{A}^1$ ,  
 $-(\text{CH}_2)_q\text{N}(\text{X}^6)\text{C}(\text{O})\text{N}(\text{X}^6)(\text{X}^6)$ ,  $-(\text{CH}_2)_q\text{C}(\text{O})\text{N}(\text{X}^6)(\text{X}^6)$ ,  $-(\text{CH}_2)_q\text{C}(\text{O})\text{N}(\text{X}^6)(\text{CH}_2)_t\text{A}^1$ ,  
 15  $-(\text{CH}_2)_q\text{C}(\text{O})\text{OX}^6$ ,  $-(\text{CH}_2)_q\text{C}(\text{O})\text{O}(\text{CH}_2)_t\text{A}^1$ ,  $-(\text{CH}_2)_q\text{OX}^6$ ,  $-(\text{CH}_2)_q\text{OC}(\text{O})\text{X}^6$ ,  
 $-(\text{CH}_2)_q\text{OC}(\text{O})(\text{CH}_2)_t\text{A}^1$ ,  $-(\text{CH}_2)_q\text{OC}(\text{O})\text{N}(\text{X}^6)(\text{CH}_2)_t\text{A}^1$ ,  $-(\text{CH}_2)_q\text{OC}(\text{O})\text{N}(\text{X}^6)(\text{X}^6)$ ,  
 $-(\text{CH}_2)_q\text{C}(\text{O})\text{X}^6$ ,  $-(\text{CH}_2)_q\text{C}(\text{O})(\text{CH}_2)_t\text{A}^1$ ,  $-(\text{CH}_2)_q\text{N}(\text{X}^6)\text{C}(\text{O})\text{OX}^6$ ,  
 $-(\text{CH}_2)_q\text{N}(\text{X}^6)\text{S}(\text{O})_2\text{N}(\text{X}^6)(\text{X}^6)$ ,  $-(\text{CH}_2)_q\text{S}(\text{O})_m\text{X}^6$ ,  $-(\text{CH}_2)_q\text{S}(\text{O})_m(\text{CH}_2)_t\text{A}^1$ ,  
 $-(C_1-C_{10})\text{alkyl}$ ,  $-(\text{CH}_2)_t\text{A}^1$ ,  $-(\text{CH}_2)_q\text{-(C}_3\text{-C}_7\text{)cycloalkyl}$ ,  $-(\text{CH}_2)_q\text{-Y}^1\text{-(C}_1\text{-C}_6\text{)alkyl}$ ,  
 20  $-(\text{CH}_2)_q\text{-Y}^1\text{-(CH}_2)_t\text{A}^1$  or  $-(\text{CH}_2)_q\text{-Y}^1\text{-(CH}_2)_t\text{-(C}_3\text{-C}_7\text{)cycloalkyl}$ ;

where the alkyl and cycloalkyl groups in the definition of  $R^1$  are optionally substituted with  $(C_1-C_4)\text{alkyl}$ , hydroxy,  $(C_1-C_4)\text{alkoxy}$ , carboxyl,  $-\text{CONH}_2$ ,  
 $-\text{S}(\text{O})_m(C_1-C_6)\text{alkyl}$ ,  $-\text{CO}_2(C_1-C_4)\text{alkyl ester}$ , 1H-tetrazol-5-yl or 1, 2 or 3 fluoro groups;

$Y^1$  is O,  $\text{S}(\text{O})_m$ ,  $-\text{C}(\text{O})\text{NX}^6$ -,  $-\text{CH}=\text{CH}-$ ,  $-\text{C}\equiv\text{C}-$ ,  $-\text{N}(\text{X}^6)\text{C}(\text{O})-$ ,  $-\text{C}(\text{O})\text{NX}^6$ -,  
 25  $-\text{C}(\text{O})\text{O}-$ ,  $-\text{OC}(\text{O})\text{N}(\text{X}^6)-$  or  $-\text{OC}(\text{O})-$ ;

$q$  is 0, 1, 2, 3 or 4;

$t$  is 0, 1, 2 or 3;

said  $(\text{CH}_2)_q$  group and  $(\text{CH}_2)_t$  group in the definition of  $R^1$  are optionally independently substituted with hydroxy,  $(C_1-C_4)\text{alkoxy}$ , carboxyl,  $-\text{CONH}_2$ ,

30  $-\text{S}(\text{O})_m(C_1-C_6)\text{alkyl}$ ,  $-\text{CO}_2(C_1-C_4)\text{alkyl ester}$ , 1H-tetrazol-5-yl, 1, 2 or 3 fluoro groups or 1 or 2  $(C_1-C_4)\text{alkyl}$  groups;

$R^{1A}$  is selected from the group consisting of hydrogen, F, Cl, Br, I,  $(C_1-C_6)\text{alkyl}$ , phenyl $(C_1-C_3)\text{alkyl}$ , pyridyl $(C_1-C_3)\text{alkyl}$ , thiazolyl $(C_1-C_3)\text{alkyl}$  and thienyl $(C_1-C_3)\text{alkyl}$ , provided that  $R^{1A}$  is not F, Cl, Br or I when a heteroatom is vicinal to C";

$R^2$ , for each occurrence, is independently hydrogen,  $(C_1-C_8)alkyl$ ,  $-(C_0-C_3)alkyl-(C_3-C_8)cycloalkyl$ ,  $-(C_1-C_4)alkyl-A^1$  or  $A^1$ ;

where the alkyl groups and the cycloalkyl groups in the definition of  $R^2$  are optionally substituted with hydroxy,  $-C(O)OX^6$ ,  $-C(O)N(X^6)(X^6)$ ,  $-N(X^6)(X^6)$ ,

5  $-S(O)_m(C_1-C_6)alkyl$ ,  $-C(O)A^1$ ,  $-C(O)(X^6)$ ,  $CF_3$ ,  $CN$  or 1, 2 or 3 independently selected halogens;

$R^3$  and  $R^4$  are each independently selected from the group consisting of hydrogen,  $(C_1-C_8)alkyl$ ,  $-CH(R^8)-aryl$ ,  $-CH(R^8)-heteroaryl$ ,  $-(C_0-C_3)alkyl(C_3-C_8)cycloalkyl$ , wherein the aryl or heteroaryl groups are optionally substituted by one  
10 or two  $R^b$  groups;

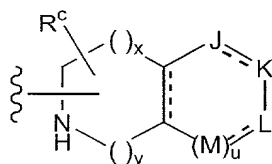
$R^b$ , for each occurrence independently, is  $R^c$ , halo,  $-OR^c$ ,  $-NHSO_2R^c$ ,  $-N(R^c)_2$ ,  $-CN$ ,  $-NO_2$ ,  $-SO_2N(R^c)_2$ ,  $-SO_2R^c$ ,  $-CF_3$ ,  $-OCF_3$ ,  $-OCF_2H$  or two  $R^b$  groups attached to adjacent carbon atoms taken together to form methylenedioxy;

$R^c$ , for each occurrence independently, is hydrogen,  $-(C_1-C_8)alkyl$ ,  $-(C_0-C_3)alkylaryl$ ,  $-(C_0-C_3)alkylheteroaryl$ ,  $(C_3-C_6)cycloalkyl$ ; or 2  $R^b$  taken together with the nitrogen atom to which they are attached to form a 5- or 6- membered ring optionally  
15 containing an additional heteroatom selected from O, S or  $NR^3$ ;

$R^6$  and  $R^7$  are each independently selected from hydrogen,  $(C_1-C_6)alkyl$ ,  $-(C_0-C_3)alkylaryl$ ,  $-(C_0-C_3)alkylheteroaryl$ ,  $-(C_0-C_3)alkyl(C_3-C_8)cycloalkyl$ ;

20 or  $R^6$  and  $R^7$  together with the nitrogen atom to which they are attached form a 5- or 6-membered ring optionally containing an additional heteroatom selected from O, S,  $NR^3$ ;

D is  $-(C_0-C_6)alkyl-amino-C(=NR^7)-NR^{15}R^{16}$ ,  $-(C_0-C_6)alkylaminopyridyl$ ,  $-(C_0-C_6)alkylaminoimidazolyl$ ,  $-(C_0-C_6)alkylaminothiazolyl$ ,  $-(C_0-C_6)alkylaminopyrimidinyl$ ,  
25  $(C_0-C_6)alkylaminopiperazinyl-R^{15}$ ,  $-(C_0-C_6)alkylmorpholinyl$ , wherein  $R^{15}$  and  $R^{16}$  are independently hydrogen,  $-(C_1-C_6)alkyl$ ,  $-(C_0-C_3)alkylaryl$ ,  $-(C_0-C_3)alkylheteroaryl$ ,  $-(C_0-C_3)alkyl(C_3-C_8)cycloalkyl$ , wherein the alkyl and aryl groups are optionally substituted with one or two  $R^b$  groups; or D is a group of the formula



wherein the dashed lines represent optional double bonds;

u is 0 or 1;

x and y are each independently 0, 1 or 2;

J, K, L and M are each independently selected from  $C(R^b)_r$ , N, S or O wherein  $R^b$  and  $R^c$  are as defined above and r is 1 or 2;

5  $X^4$  is hydrogen or  $(C_1-C_6)$ alkyl or  $X^4$  is taken together with  $R^4$  and the nitrogen atom to which  $X^4$  is attached and the carbon atom to which  $R^4$  is attached and form a five to seven membered ring;

$R^8$  is hydrogen,  $-(C_1-C_8)$ alkyl,  $-(C_0-C_3)$ alkylaryl,  $-(C_0-C_3)$ alkylheteroaryl,  $-(C_3-C_6)$ cycloalkyl; or 2  $R^b$  taken together with the nitrogen atom to which they are  
10 attached to form a 5- or 6- membered ring optionally containing an additional heteroaryl selected from O, S or  $NR^3$ ;

$R^9$  and  $R^{10}$ , for each occurrence, are each independently selected from the group consisting of hydrogen, fluoro, hydroxy and  $(C_1-C_5)$ alkyl optionally independently substituted with 1-5 halogens;

15  $R^{11}$  is selected from the group consisting of  $(C_1-C_5)$ alkyl and phenyl optionally substituted with 1-3 substituents each independently selected from the group consisting of  $(C_1-C_5)$ alkyl, halo and  $(C_1-C_5)$ alkoxy;

$R^{12}$  is selected from the group consisting of  $(C_1-C_5)$ alkylsulfonyl,  $(C_1-C_5)$ alkanoyl and  $(C_1-C_5)$ alkyl where the alkyl portion is optionally independently  
20 substituted by 1-5 halogens;

$A^1$  for each occurrence is independently selected from the group consisting of  $(C_5-C_7)$ cycloalkenyl, phenyl, a partially saturated, fully saturated or fully unsaturated 4- to 8-membered ring optionally having 1 to 4 heteroatoms independently selected from the group consisting of oxygen, sulfur and nitrogen and a bicyclic ring system  
25 consisting of a partially saturated, fully unsaturated or fully saturated 5- or 6-membered ring, optionally having 1 to 4 heteroatoms independently selected from the group consisting of nitrogen, sulfur and oxygen, fused to a partially saturated, fully saturated or fully unsaturated 5- or 6-membered ring, optionally having 1 to 4 heteroatoms independently selected from the group consisting of nitrogen, sulfur and  
30 oxygen;

$A^1$  for each occurrence is independently optionally substituted, on one or optionally both rings if  $A^1$  is a bicyclic ring system, with up to three substituents, each substituent independently selected from the group consisting of F, Cl, Br, I,  $-OCF_3$ ,  $-OCF_2H$ ,  $-CF_3$ ,  $-CH_3$ ,  $-OCH_3$ ,  $-OX^6$ ,

-C(O)N(X<sup>6</sup>)(X<sup>6</sup>), -C(O)OX<sup>6</sup>, oxo, (C<sub>1</sub>-C<sub>6</sub>)alkyl, nitro, cyano, benzyl,  
 -S(O)<sub>m</sub>(C<sub>1</sub>-C<sub>6</sub>)alkyl, 1H-tetrazol-5-yl, phenyl, phenoxy, phenylalkyloxy,  
 halophenyl, methylenedioxy, -N(X<sup>6</sup>)(X<sup>6</sup>), -N(X<sup>6</sup>)C(O)(X<sup>6</sup>), -S(O)<sub>2</sub>N(X<sup>6</sup>)(X<sup>6</sup>),  
 -N(X<sup>6</sup>)S(O)<sub>2</sub>-phenyl, -N(X<sup>6</sup>)S(O)<sub>2</sub>X<sup>6</sup>, -CONX<sup>11</sup>X<sup>12</sup>, -S(O)<sub>2</sub>NX<sup>11</sup>X<sup>12</sup>,  
 -NX<sup>6</sup>S(O)<sub>2</sub>X<sup>12</sup>, -NX<sup>6</sup>CONX<sup>11</sup>X<sup>12</sup>, -NX<sup>6</sup>S(O)<sub>2</sub>NX<sup>11</sup>X<sup>12</sup>, -NX<sup>6</sup>C(O)X<sup>12</sup>, imidazolyl,  
 thiazolyl and tetrazolyl, provided that if A<sup>1</sup> is optionally substituted with  
 methylenedioxy then it can only be substituted with one methylenedioxy;

where X<sup>11</sup>, for each occurrence, is independently hydrogen or  
 optionally substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl;

the optionally substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl defined for X<sup>11</sup> is  
 optionally independently substituted with phenyl, phenoxy, (C<sub>1</sub>-  
 C<sub>6</sub>)alkoxycarbonyl, -S(O)<sub>m</sub>(C<sub>1</sub>-C<sub>6</sub>)alkyl, 1 to 5 halogens, 1 to 3  
 hydroxy groups, 1 to 3 (C<sub>1</sub>-C<sub>10</sub>)alkanoyloxy groups or 1 to 3  
 (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups;

X<sup>12</sup>, for each occurrence, is independently hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl,  
 phenyl, thiazolyl, imidazolyl, furyl or thienyl, provided that when X<sup>12</sup> is  
 not hydrogen, the X<sup>12</sup> group is optionally substituted with one to three  
 substituents independently selected from the group consisting of Cl, F,  
 CH<sub>3</sub>, OCH<sub>3</sub>, OCF<sub>3</sub> and CF<sub>3</sub>;

or X<sup>11</sup> and X<sup>12</sup> are taken together to form -(CH<sub>2</sub>)<sub>g</sub>-L<sup>1</sup>-(CH<sub>2</sub>)<sub>g</sub>;

L<sup>1</sup> is C(X<sup>2</sup>)(X<sup>2</sup>), O, S(O)<sub>m</sub> or N(X<sup>2</sup>);

g for each occurrence is independently 1, 2 or 3;

X<sup>2</sup> for each occurrence is independently hydrogen, optionally substituted (C<sub>1</sub>-  
 C<sub>6</sub>)alkyl or optionally substituted (C<sub>3</sub>-C<sub>7</sub>)cycloalkyl, where the optionally substituted  
 (C<sub>1</sub>-C<sub>6</sub>)alkyl and optionally substituted (C<sub>3</sub>-C<sub>7</sub>)cycloalkyl in the definition of X<sup>2</sup> are  
 optionally independently substituted with -S(O)<sub>m</sub>(C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)OX<sup>3</sup>, 1 to 5  
 halogens or 1-3 OX<sup>3</sup> groups;

X<sup>3</sup> for each occurrence is independently hydrogen or (C<sub>1</sub>-C<sub>6</sub>)alkyl;

X<sup>6</sup> for each occurrence is independently hydrogen, optionally substituted (C<sub>1</sub>-  
 C<sub>6</sub>)alkyl, (C<sub>2</sub>-C<sub>6</sub>)halogenated alkyl, optionally substituted (C<sub>3</sub>-C<sub>7</sub>)cycloalkyl, (C<sub>3</sub>-C<sub>7</sub>)-  
 halogenated cycloalkyl, where optionally substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl and optionally  
 substituted (C<sub>3</sub>-C<sub>7</sub>)cycloalkyl in the definition of X<sup>6</sup> is optionally independently mono-  
 or di-substituted with (C<sub>1</sub>-C<sub>4</sub>)alkyl, hydroxy, (C<sub>1</sub>-C<sub>4</sub>)alkoxy, carboxyl, CONH<sub>2</sub>,  
 -S(O)<sub>m</sub>(C<sub>1</sub>-C<sub>6</sub>)alkyl, carboxylate (C<sub>1</sub>-C<sub>4</sub>)alkyl ester or 1H-tetrazol-5-yl; or

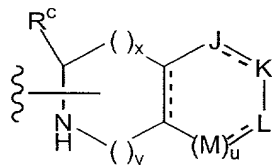
when there are two  $X^6$  groups on one atom and both  $X^6$  are independently (C<sub>1</sub>-C<sub>6</sub>)alkyl, the two (C<sub>1</sub>-C<sub>6</sub>)alkyl groups may be optionally joined and, together with the atom to which the two  $X^6$  groups are attached, form a 4- to 9- membered ring optionally having oxygen, sulfur or  $NX^7$  as a ring member;

- 5  $X^7$  is, for each occurrence independently, hydrogen or (C<sub>1</sub>-C<sub>6</sub>)alkyl optionally substituted with hydroxy;

m for each occurrence is independently 0, 1 or 2;

with the proviso that:  $X^6$  and  $X^{12}$  cannot be hydrogen when attached to C(O) or S(O)<sub>2</sub> in the form C(O) $X^6$ , C(O) $X^{12}$ , S(O)<sub>2</sub> $X^6$  or S(O)<sub>2</sub> $X^{12}$ .

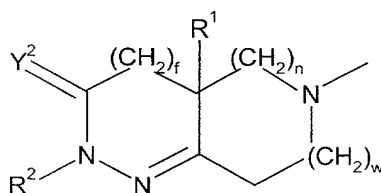
- 10 2. A compound according to claim 1, wherein D is



3. A compound according to claim 2, wherein x is 1, y is 1 and u is 1.

4. A compound according to claim 3, wherein J, K, L and M are each  
15  $NR^b$  or  $C(R^b)_r$ , where r = 1 or 2,  $R^4$  is  $-CH_2$ -aryl in which aryl is optionally substituted by  $R^b$

5. A compound according to claim 4, wherein HET is



- 20 6. A compound according to claim 5, wherein  $Y^2$  is oxygen, f is 0, n is 1 or 2; and w is 0 or 1.

7. A compound according to claim 6, wherein  $R^2$  is (C<sub>1</sub>-C<sub>6</sub>)alkyl optionally substituted by halo,  $R^3$  is hydrogen, n is 1, w is 1, and  $R^1$  is aryl(C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>1</sub>-C<sub>6</sub>)alkyl or heteroaryl(C<sub>1</sub>-C<sub>6</sub>)alkyl wherein aryl and heteroaryl are optionally  
25 substituted with one or two groups from the following list: halo,  $-OR^c$ ,  $-NHSO_2R^c$ ,  $-N(R^c)_2$ ,  $-CN$ ,  $-NO_2$ ,  $-SO_2N(R^c)_2$ ,  $-SO_2R^c$ ,  $-CF_3$ ,  $-OCF_3$ ,  $-OCF_2H$ .

8. A compound according to claim 7, wherein J, K, L and M are each N or CR<sup>b</sup> and the dashed lines represent double bonds, R<sup>1</sup> is benzyl optionally substituted by halo, -R<sup>c</sup>, -OR<sup>c</sup>, -CF<sub>3</sub>, -OCF<sub>3</sub>, -OCF<sub>2</sub>H, R<sup>c</sup>, hydrogen, -(C<sub>1</sub>-C<sub>6</sub>)alkyl, 5 -(C<sub>0</sub>-C<sub>3</sub>)alkylaryl, -(C<sub>0</sub>-C<sub>3</sub>)alkylheteroaryl or -(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl.

9. A compound according to claim 1, wherein said compound is selected from the group consisting of:

1,2,3,4-Tetrahydro-isoquinoline-(S)3-carboxylic acid [2-((R)3a-benzyl-2-methyl-3-oxo-2,3,3a,4,6,7-hexahydro-pyrazolo[4,3-c]pyridin-5-yl) -(R)1-(4-chloro-benzyl)-2-oxo-ethyl]-amide;

1,2,3,4-Tetrahydro-isoquinoline-(R)3-carboxylic acid [2-((R)3a-benzyl-2-methyl-3-oxo-2,3,3a,4,6,7-hexahydro-pyrazolo[4,3-c]pyridin-5-yl) -(R)1-(4-chloro-benzyl)-2-oxo-ethyl]-amide;

1,2,3,4-Tetrahydro-isoquinoline-(R)3-carboxylic acid [2-[3a-benzyl-3-oxo-2-(2,2,2-trifluoro-ethyl)-2,3,3a,4,6,7-hexahydro-pyrazolo[4,3-c]pyridin-5-yl] -(R)1-(4-chloro-benzyl)-2-oxo-ethyl]-amide;

1,2,3,4-Tetrahydro-isoquinoline-(R)3-carboxylic acid {(R)1-(4-chloro-benzyl)-2-[2-ethyl-(S)3a-(4-fluoro-benzyl)-3-oxo-2,3,3a,4,6,7-hexahydro-pyrazolo[4,3-c]pyridin-5-yl]-2-oxo-ethyl}-amide;

1,2,3,4-Tetrahydro-isoquinoline-(S)3-carboxylic acid {(R)1-(4-chloro-benzyl)-2-[2-ethyl-(S)3a-(4-fluoro-benzyl)-3-oxo-2,3,3a,4,6,7-hexahydro-pyrazolo[4,3-c]pyridin-5-yl]-2-oxo-ethyl}-amide;

1,2,3,4-Tetrahydro-isoquinoline-(S)3-carboxylic acid {(R)1-(4-chloro-benzyl)-2-[(S)3a-(4-chloro-benzyl)-2-ethyl-3-oxo-2,3,3a,4,6,7-hexahydro-pyrazolo[4,3-c]pyridin-5-yl]-2-oxo-ethyl}-amide;

1,2,3,4-Tetrahydro-isoquinoline-(R)3-carboxylic acid {(R)1-(4-chloro-benzyl)-2-[(S)3a-(4-chloro-benzyl)-2-ethyl-3-oxo-2,3,3a,4,6,7-hexahydro-pyrazolo[4,3-c]pyridin-5-yl]-2-oxo-ethyl}-amide;

1,2,3,4-Tetrahydro-isoquinoline-(R)3-carboxylic acid [2-((S)3a-benzyl-2-methyl-3-oxo-2,3,3a,4,6,7-hexahydro-pyrazolo[4,3-c]pyridin-5-yl)-(R)1-(4-chloro-benzyl)-2-oxo-ethyl]-amide;

1,2,3,4-Tetrahydro-isoquinoline-(R)3-carboxylic acid {(R)1-(4-chloro-benzyl)-2-[(R)3a-(3-fluoro-benzyl)-3-oxo-2,3,3a,4,6,7-hexahydro-pyrazolo[4,3-c]pyridin-5-yl]-2-oxo-ethyl}-amide;

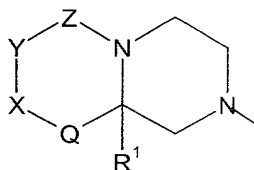


1,2,3,4-Tetrahydro-isoquinoline-(S)3-carboxylic acid [2-[3a-benzyl-3-oxo-2-(2,2,2-trifluoro-ethyl)-2,3,3a,4,6,7-hexahydro-pyrazolo[4,3-c]pyridin-5-yl]-(R)1-(4-chloro-benzyl)-2-oxo-ethyl]-amide; and

1,2,3,4-Tetrahydro-isoquinoline-(R)3-carboxylic acid [(R)1-(4-chloro-benzyl)-2-oxo-2-(3-oxo-3a-pyridin-2-ylmethyl-2,3,3a,4,6,7-hexahydro-pyrazolo[4,3-c]pyridin-5-yl)-ethyl]-amide.

10. A compound according to claim 7, wherein J, K, L and M are each  $\text{NR}^b$  or  $\text{C}(\text{R}^b)_2$  and the dashed lines represent single bonds, wherein  $\text{R}^b$  is hydrogen, halo,  $\text{R}^c$ ,  $-\text{OR}^c$ ,  $-\text{CF}_3$ ,  $-\text{OCF}_3$ ,  $-\text{OCF}_2\text{H}$ ,  $\text{R}^c$  is hydrogen,  $(\text{C}_1-\text{C}_8)\text{alkyl}$ ,  $(\text{C}_0-\text{C}_3)\text{alkylaryl}$ ,  $(\text{C}_0-\text{C}_3)\text{alkylheteroaryl}$  or  $-(\text{C}_3-\text{C}_6)\text{cycloalkyl}$ .

11. A compound according to claim 4, wherein HET is



12. A compound according to claim 11, wherein Q is a covalent bond; X and Z are each  $\text{C}=\text{O}$ ; and Y is  $\text{NR}^2$ .

13. A compound according to claim 12, wherein  $\text{R}^2$  is  $(\text{C}_1-\text{C}_6)\text{alkyl}$  optionally substituted by halo, and  $\text{R}^1$  is  $\text{aryl}(\text{C}_1-\text{C}_6)\text{alkyl}$ ,  $(\text{C}_1-\text{C}_6)\text{alkyl}$  or  $\text{heteroaryl}(\text{C}_1-\text{C}_6)\text{alkyl}$  wherein  $\text{aryl}$  and  $\text{heteroaryl}$  are optionally substituted with one or two groups from the following list: halo,  $\text{OR}^c$ ,  $-\text{NHSO}_2\text{R}^c$ ,  $\text{N}(\text{R}^c)_2$ ,  $\text{CN}$ ,  $\text{NO}_2$ ,  $\text{SO}_2\text{N}(\text{R}^c)_2$ ,  $-\text{SO}_2\text{R}^c$ ,  $-\text{CF}_3$ ,  $-\text{OCF}_3$ ,  $-\text{OCF}_2\text{H}$ .

14. A compound according to claim 13, wherein J, K, L and M are each N or  $\text{CR}^b$  and the dashed lines represent double bonds,  $\text{R}^1$  is benzyl optionally substituted by halo,  $-\text{R}^c$ ,  $-\text{OR}^c$ ,  $-\text{OCF}_3$ ,  $-\text{OCF}_2\text{H}$ , and  $\text{R}^c$  is hydrogen,  $-(\text{C}_1-\text{C}_8)\text{alkyl}$ ,  $-(\text{C}_0-\text{C}_3)\text{alkylaryl}$ ,  $-(\text{C}_0-\text{C}_3)\text{alkylheteroaryl}$  or  $-(\text{C}_3-\text{C}_6)\text{cycloalkyl}$ .

15. A compound according to claim 1, wherein said compound is selected from the group consisting of:

1,2,3,4-Tetrahydro-isoquinoline-(S)3-carboxylic acid {(R)1-(4-chloro-benzyl)-2-[1,3-dioxo-(S)8a-pyridin-2-ylmethyl-2-(2,2,2-trifluoro-ethyl)-hexahydro-imidazo[1,5-a]pyrazin-7-yl]-2-oxo-ethyl}-amide;

1,2,3,4-Tetrahydro-isoquinoline-(R)3-carboxylic acid {(R)1-(4-chloro-benzyl)-2-[(R)8a-(4-fluoro-benzyl)-2-methyl-1,3-dioxo-hexahydro-imidazo[1,5-a]pyrazin-7-yl]-2-oxo-ethyl}-amide;

1,2,3,4-Tetrahydro-isoquinoline-(S)3-carboxylic acid {(R)1-(4-chloro-benzyl)-2-[1,3-dioxo-(S)8a-pyridin-3-ylmethyl-2-(2,2,2-trifluoro-ethyl)-hexahydro-imidazo[1,5-a]pyrazin-7-yl]-2-oxo-ethyl}-amide;

1,2,3,4-Tetrahydro-isoquinoline-(S)3-carboxylic acid {(R)1-(4-chloro-benzyl)-2-[8a-(4-fluoro-benzyl)-3-oxo-tetrahydro-oxazolo[3,4-a]pyrazin-7-yl]-2-oxo-ethyl}-amide;

1,2,3,4-Tetrahydro-isoquinoline-(S)3-carboxylic acid {(R)1-(4-chloro-benzyl)-2-[8a-(4-fluoro-benzyl)-2-methyl-1,3-dioxo-hexahydro-imidazo[1,5-a]pyrazin-7-yl]-2-oxo-ethyl}-amide; and

1,2,3,4-Tetrahydro-isoquinoline-(S)3-carboxylic acid {(R)1-(4-chloro-benzyl)-2-[8a-(4-fluoro-benzyl)-2-methyl-1,3-dioxo-hexahydro-imidazo[1,5-a]pyrazin-7-yl]-2-oxo-ethyl}-amide.

16. A compound according to claim 13, wherein J, K, L and M are each  $\text{NR}^b$  or  $\text{C}(\text{R}^b)_2$  and the dashed lines represent single bonds,  $\text{R}^b$  is hydrogen, halo,  $\text{R}^c$ ,  $\text{OR}^c$ ,  $-\text{CF}_3$ ,  $-\text{OCF}_3$ ,  $-\text{OCF}_2\text{H}$ ,  $\text{R}^c$  is hydrogen,  $-\text{C}_1-\text{C}_8$  alkyl,  $-(\text{C}_0-\text{C}_3)$  alkylaryl,  $-(\text{C}_0-\text{C}_3)$  alkylheteroaryl or  $-(\text{C}_3-\text{C}_6)$  cycloalkyl.

17. A method for the treatment or prevention of disorders, diseases or conditions responsive to the activation of melanocortin receptor which comprises administering to a mammal in need of such treatment or prevention an effective amount of a compound of Claim 1.

18. A method for the treatment or prevention of obesity which comprises administering to a mammal in need of such treatment or prevention an effective amount of a compound of Claim 1.

19. A method for the treatment or prevention of diabetes mellitus which comprises administering to a mammal in need of such treatment or prevention an effective amount of Claim 1.

20. A method for the treatment or prevention of male or female sexual dysfunction which comprises administering to a mammal in need of such treatment or prevention an effective amount of a compound of Claim 1.

21. A method for the treatment or prevention of erectile dysfunction which

comprises administering to a mammal in need of such treatment or prevention an effective amount of a compound of Claim 1.

22. A method for modulating appetite and metabolic rates of mammals which comprises administering to a mammal in need of such treatment or prevention  
5 an effective amount of a compound of Claim 1.

23. A method for treating or preventing disorders that cause reduction in appetite, feeding behavior and/or body weight in a mammal which comprises administering to a mammal in need of such treatment or prevention an effective amount of a compound of Claim 1.

10 24. A method for acutely stimulating the appetite of companion animals for the treatment of hepatic lipidosis, cachexia and other pathologies resulting in/from inappropriate food intake and weight loss, which comprises administering to a mammal in need of such treatment or prevention an effective amount of a compound of Claim 1.

15 25. A method for acutely stimulating the appetite of livestock for the treatment of ketosis, postpartum anestrus, and other metabolic and reproductive pathologies resulting in/from inappropriate food intake and weight loss which comprises administering to a mammal in need of such treatment or prevention an effective amount of a compound of Claim 1.

20 26. A method that will enhance growth and survivability of neonates in livestock which comprises administering to a mammal in need of such treatment or prevention an effective amount of a compound of Claim 1.

27. A pharmaceutical composition which comprises a compound of Claim 1 and a pharmaceutically acceptable carrier.

25 28. A pharmaceutical composition of claim 27 further comprising a second active ingredient selected from an insulin sensitizer, insulin mimetic, sulfonylurea,  $\alpha$ -glucosidase inhibitor, HMG-CoA reductase inhibitor, sequestrant cholesterol lowering agent,  $\beta$ 3 adrenergic receptor agonists, neuropeptide Y antagonist, phosphodiester V inhibitor, and  $\alpha$ -2 adrenergic receptor antagonist.